Air Resources Board

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August 6, 2001 Mail-Out #MSC-01-14

TO: All Interested Parties

SUBJECT: PUBLIC WORKSHOP REGARDING THE RETROFIT VERIFICATION PROCEDURE FOR ON-ROAD, OFF-ROAD, AND STATIONARY DIESEL-FUELED VEHICLES AND EQUIPMENT

Background: In August 1998, the Air Resources Board (ARB) identified particulate matter (PM) exhaust from diesel-fueled engines as a toxic air contaminant. Following that determination, the ARB formed a Diesel Advisory Committee with a wide variety of stakeholders to develop a Diesel Risk Reduction Plan (DRRP). The DRRP, approved by the Board in September 2000, identified retrofitting of in-use engines as a vital component of the overall PM control strategy.

In July 2000, ARB staff issued the interim guidelines for retrofit verification (Mail-Out MSC 00-14). In May of 2001, ARB staff conducted a workshop to gather comments on a revised draft of that procedure (Mail-Out MSC 01-06). Since that time, based on the comments received from interested stakeholders, the staff has made further revisions and clarifications to the draft procedure.

Please note that the procedure outlines information necessary to verify reductions from equipment-based retrofit systems which may or may not include fuel modifications; it does not address emissions reductions due solely to fuel modifications. If you are interested in having ARB review and verify fuel modifications to reduce emissions, please contact Mr. Gary Yee at (916) 327-5986. For more information, you may access ARB's website at http://www.arb.ca.gov/diesel/dieselrrp.htm.

Workshop: In order to assist the manufacturers of retrofit emissions controls, the ARB staff will hold a public workshop to discuss the revised draft requirements for verifying emissions reductions from the use of retrofit devices on diesel engines. Issues to be discussed include the process of the retrofit verification procedure, test requirements and reporting requirements.

Date:	September 5, 2001
Time:	9:30 a.m. to Noon
Location:	Old State Building 107 S. Broadway Room 1138, First Floor Los Angeles, CA 90013

Revisions to the Retrofit Verification Procedure: The draft regulatory language for the retrofit verification procedure is included as Attachment 1. Some major issues are highlighted below.

1. Emissions Levels: Previously, the Retrofit Verification Procedure had incorporated an emissions reduction threshold of 85 percent reduction or 0.01 g/bhp-hr absolute emissions level. As staff has gone forward with implementation of the retrofit portion of the Diesel Risk Reduction Plan, we have found that for some applications and engines an 85 percent reduction in PM may not be technologically feasible. However, PM reductions, albeit at lower levels of efficiency, were still possible for those engines and applications. In recognition of this, and in order to facilitate the retrofit process, we are proposing a multi-level approach to the Retrofit Verification Procedure.

The multi-level approach will establish three levels of PM reduction thresholds. Level 1 verification will refer to technologies that meet at least a 30 percent reduction (and less than a 60 percent reduction). Level 2 verification will be available to technologies that achieve a minimum PM reduction of 60 percent (but less than 85 percent). Level 3 includes technologies that achieve 85 percent or greater reductions in PM or an absolute level of 0.01 grams per brake horsepower-hour.

This should result in the continued development of high-efficiency control technologies and provide for a wide range of control technologies to participate in the verification process. It should be noted that, while we are proposing a multi-level approach to the verification procedures, we are not deviating from our goal to achieve the maximum reduction in diesel PM emissions that are economically and technologically feasible.

At this time, staff anticipates that the retrofit implementation programs will require, of a given application and engine family, the highest level retrofit system that has been verified. Therefore, when a system has been verified at a given level for that application and engine family, staff will cease verification of lower level retrofit systems for that application and engine family. Furthermore, verification for lesser level retrofit systems would not be valid for future retrofits. Verification would not be retroactively revoked for systems that had already been installed. The specifics of the programs for the individual categories of retrofits are outside the scope of this item, but staff would like to emphasize that engines that have already been retrofitted will not necessarily need to remove the lower level system and install a higher level system. Please direct any comments regarding the appropriate times to retrofit different categories to the staff people who will be working on that rule.

2. Verification of NOx Reductions: Several requests have been made to provide emission reduction verification for emissions control technologies that reduce oxides of nitrogen (NOx). We agree that this would be useful information, particularly in light of the increased focus on incentive and other regulatory programs to reduce NOx

emissions. As such, we are proposing to revise the Retrofit Verification Procedure to specifically quantify retrofit devices' effects on NOx emissions. We are not proposing to establish threshold values and level designations for NOx at this time.

3. Backpressure Monitor Requirement: We are also proposing to include a requirement that backpressure monitors be used for filter-based systems. We believe this is a practical way to determine if the retrofitted equipment is performing properly. For example, sustained high backpressure could signal imminent plugging. A monitor would enable the operator to intervene and prevent having the engine stall. Knowledge of the status of the retrofit will be beneficial to the operator and will make the operator more comfortable with retrofitting the equipment.

4. Test Requirements: Staff has reduced the number of tests required for verification. Additionally, to clarify that existing data can be submitted, the staff will prepare criteria for evaluating chassis test cycles other than the Urban Dynamometer Driving Schedule.

The staff has opted to retain the right to require additional exhaust analysis as needed. The staff will evaluate a number of criteria when determining whether such additional analysis is warranted. These criteria include, but are not limited to: whether the retrofit system involves the addition of any substance to the fuel, intake air or exhaust stream, whether a catalytic reaction is known or reasonably suspected to increase toxic air contaminants or other undesirable species (including ozone precursors), and field experience.

5. Conditional Verification: Several commenters expressed the opinion that the requirements for conditional verification were too onerous. To address these concerns, the staff proposes to reduce the testing requirements for conditional verification as it has done for testing in general. A retrofit system would be eligible for conditional verification upon completion of one-third of the minimum durability period, provided staff has sufficient information to determine that the system is technologically feasible for the application. Criteria that will be considered include, but are not limited to: the system design, the filter substrate, catalyst substrate, similarity to already verified systems, testing data, and field experience.

Staff continues to hold the viewpoint that the end-users of any verified device must have certainty that they are in compliance with any regulations. A successful retrofit program cannot be based on the state requiring installation of or providing incentives for devices that do not meet the minimum standards established. Therefore, staff has retained the provisions requiring replacement of any conditionally-verified system that proves not to meet the requirements of full verification. In this way, manufacturers do have the ability to market products before final testing, but do so with the responsibility of ensuring that the end-users continue to meet the requirements of the retrofit program.

6. In-Use Compliance Requirements: In-use compliance testing in this context does not refer to mechanisms for ensuring that a given engine has a functioning retrofit system in place. Rather, staff's intention is that in-use compliance testing will serve to ensure that production retrofit systems are consistent with verified designs.

Staff does not at this time have draft language for the in-use compliance requirements available. However, it expects to be able to provide some material at the workshop and encourages all interested parties to provide comments on how best to proceed.

7. Interaction with other ARB programs: When the verification procedure is presented to the Board, staff intends to make changes to existing regulations as necessary to streamline and simplify the verification process (e.g., confirm that verification will include an exemption from the anti-tampering provisions of Vehicle Code 27156 without the need for further testing). Staff would appreciate specific comments on this idea.

Interim Retrofit Verification: The ARB continues to review verification requests for the interim period before the retrofit verification procedure is presented to the Board. The ARB has already begun evaluation of some retrofit emission control systems, and encourages all interested manufacturers to participate. It should be stressed that staff has committed to consider existing data in its evaluation of retrofit systems in this interim period.

To begin the verification process, a manufacturer should contact ARB staff to discuss its product and its plan to meet the verification requirements. If the emission control system is to be used on a certified engine, the manufacturer will also need to take steps to receive a Vehicle Code 27156 exemption. The exemption allows sales and installation of the reviewed emission control system in the State of California (without confirming any emission reduction claims).

To expedite review, the manufacturer’s application should follow the format shown in Attachment 2. If ARB determines that the emission control system meets the minimum requirements, the manufacturer will be provided with verification of emission reductions in the form of a letter. The verification letter states ARB has reviewed and verified the claims of emission reductions based on data provided for the emission control system.

ARB staff are available to discuss all the requirements described in the procedure and to provide feedback on the manufacturer’s test plan to ensure that the necessary data for the verification process are obtained.

Manufacturers wishing to participate in the verification process should mail applications to:

Air Resources Board
Mobile Source Control Division
9528 Telstar Avenue
El Monte, CA 91731
Attn: Mr. Robert H. Cross, Chief

Written Comments: Staff encourages written comments regarding the retrofit verification procedure. To ensure that any confidential information be handled properly, commenters should identify confidential information as such when submitted. The guidelines for the ARB's handling of designated confidential information can be found in the website (http://www.arb.ca.gov/regact/confid.htm). Comments will be most helpful if they are submitted prior to the workshop so that they may be incorporated into the workshop discussion.

Should you have any questions or comments regarding the workshop or the verification procedure, please contact Dr. David Chou by e-mail at cchou@arb.ca.gov or by phone at (626) 450-6109 or contact Mr. Scott Rowland, Manager, Retrofit Assessment Section, by e-mail at srowland@arb.ca.gov or by phone at (626) 575-6972.

Special Note Regarding the Distribution of Mail-Outs: The ARB website contains links for interested parties to sign up to receive an e-mail notification to link them to new outgoing mobile source mailings. This was developed to minimize outgoing hardcopies of future mailings, and to enable the interested public to receive mailings more expeditiously. If you or your company has access to the Internet and you are interested in receiving mailings this way, please follow the instructions on the http://www.arb.ca.gov/listserv/ms-mailings/ms-mailings.htm web page. After you have signed up, please contact Ms. Neidy Pinuelas at (626) 350-6454 so she can remove your address from the hardcopy list.

Sincerely,

//s//

Robert H. Cross, Chief
Mobile Source Control Division

Attachments